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FISCAL YEAR 1978
ENGINEERING & DEVELOPMENT APPROVED PROGRAMS



OCTOBER 1977

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Systems Research & Development Service
Washington, D.C. 20590

TECHNICAL PROGRAM DIRECTIVE

No. $\frac{1}{78-01-01} \frac{2}{101} \frac{3}{101}$

SUBJECT: FY-78 SRDS Annual Technical Program

The enclosed FY-78 SRDS Annual Technical Program Document (TPD) establishes the Subprograms approved for implementation by the Director of SRDS. The implementation of these efforts is subject to the availability of resources.

This Annual Technical Program will be under continuing review and will be updated by means of Technical Program Directives as technical and other requirements dictate. Resumes in this Technical Program are structured according to the FAA Engineering and Development Programs 01 through 21.

DAVID J. SHEFTEL
Director, Systems Research and
Development Service, ARD-1

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^{2/} Sequence of Technical Program Directive Issuance, coded and controlled by ARD-50/54.

^{3/} FAA ED Programs (per FAA-ED-00-C as amended).

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FOREWORD

This FY-78 Technical Program Document (TPD) contains Research and Technology Resumes which reflect Systems Research and Development Service, Federal Aviation Administration, approved subprograms. These resumes identify the technical objective, approach, milestones scheduled for accomplishment, end-item products, and FY-77 accomplishments, and source of requirements.

The TPD is structured according to the following 21 Engineering and Development Programs:

01	System	11	ATC Systems Comman! Center
02	Radar		Automation
03	Beacon	12	Enroute Control
04	Navigation	13	Flight Service Stations
05	Airborne Separation	14	Terminal/Tower Control
	Assurance	15	Weather
06	Communications	16	Technology*
07	Approach and Landing Systems	17	Satellites
08	Airport/Airside	18	Aircraft Safety
09	Airport/Landside*	19	Aviation Medicine**
10	Oceanic***	20	Environment
		21	Support

The fourth Arabic number in the Current Number/Code in block 10a of the Resume (i.e., 013-150) identifies the responsible lead division in SRDS, i.e.,

- 1 = ARD-100 Air Traffic Control Systems Division
- 2 = ARD-200 Communications Division
- 3 = ARD-300 Navigation Division
- 4 = ARD-400 Airport Division
- 5 = ARD-500 Aircraft and Noise Abatement Division
- 6 = ARD-60 Spectrum Analysis Staff
- 7 = ARD-700 Microwave Landing System Division

Comments and recommendations concerning this TPD may be directed to the Chief, Program Management Staff, ARD-50.

* Transferred to OSEM

** Not included

*** No Program

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022-242	Hazardous Weather Detection
022-243	Moving Target Detector (MTD)
023-241	Limited Surveillance Radar (LSR)
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032-241	ATCRBS Monitoring & Policing
033-241	ATCRBS Transmitter Site Equipment
034-241	Discrete Address Beacon System (DABS)
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PROCURE METHOD	T. CONTRACT/GRANT . DAT	•	142	1421	NA L
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	Second Street, SW		M AME: ADDRESS		
Wasi	nington, DC 20590				
- mov. Keni	neth 3. Coonley, ARD-2	43	PRINCIPAL: ASSOCIATE:		
	2) 426-8576		TEL:		TYPE:
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washin	geon. DC 20390		INVESTIGATORS		
	h E. Coonley, ARD-243		PRINCIPAL: ASSOCIATE:		
(202)	426-8576		TEL:		TYPE:
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	in Natchipolsky, ARD-2) 426-8563	41	AMBCIATEI TELI		TYPE
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	BS - Aircraft Antennas	- ATCRBS	Interference -	- Transponder -	
AND DESCRIPTION OF THE PERSON	meter Digitizer				
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procurem	ens dava packages.				
26 Mileston	es Scheduled for Accom	plishment:			
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	d to field site problem			3	as requested
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26A Accompli	shments FY-77:				
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Approach: The total effort will included will be supported by in-house person contractors as needed, by NAFEC and be Milestones Scheduled for Accomplishm VLF Noise Cancellation Antenna evalued Study - Domestic VLF Navigation System Cost VLF/Omega System evaluation Omega Signal Monitor System evaluation Definitive Analysis - Role of VLF Na Omega Offshore evaluation completed General Aviation Omega Receiver Developments FY-77 Feasibility Model Differential Omega	nel, by a y other of the sem comple on comple vigation	a technical a government ag mpleted eted ted in Aviation and Evaluatio	ssistance contro encies. completed n completed	10/7 5/7 10/7 6/7 10/7 9/7 6/8
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	ge H. Quinn, ARD-333 426-8596		IMVESTIGATORS PRINCIPAL: ASSOCIATE: TEL:		TVPE:
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TECHNOLOGY UTILIZATION		TEL:		TYPE:
NA KEYWORDS			NA	
Approach: SRDS, NAFEC and contracts outlined in the Task Force Report. Terminal design application, flight and fast time simulations. Further FAA-ED-04-02 "Engineering and Devel Milestones Scheduled for Accomplish 2D/3D RNAV Avionics Standards Complete Accomplishments FY-77: Final Report "Terminal Area Designational Report "An Operational Evaluation of Area Report "Implementation of Area Designational Report "Implementati	or support The approte tests, condefinition The appropriate tests, condefinition The approximation The	will be used bach include ockpit simula on of the app ogram Plan - 6/78 6/79	d to accomplises studies, en ations, ATC re broach is cont Area Navigati on ofRNAV Task	th the 12 tasks broute and eal-time simulat ained in report on."
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(202)	426-8596		TEL:		TYPE:
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	e Quinn, ARD-333 26-8596		PRINCIPAL: ASSOCIATE:		
T TECHNOLOGY UTIL			TEL: 22. COORDINATION		TYPE:
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	ojective: Evaluate Lor the domestic U.S.	an-Casas	upplement or	possible replac	ement for
and equipmer personnel,	ne total effort will in it development and eva- by a technical assista other government age	luation. T ance contra	he work will	be supported by	in-house
Study - Lora Loran-C Data Assessment - Evaluation of Loran-C Sign	scheduled for Accomplism-C as a VOR/DME Replanation Analysis Report complete Loran-C as VOR/DME Report Teledyne TDL-424 report Monitor evaluation oran-C System Develops	acement (SC leted eplacement ceivers completed	(SRDS)	leted	10/77 2/79 6/81 12/78 12/80 3/82
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navigation Approach:	Objective: To determ system required to s Current satellite sys	atisfy the 1 tems will be	argest civil analyzed to	aviation com determine ap	munity. plicability.
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I 049-330

05 AIRBORNE SEPARATION
ASSURANCE

Accept FAA/SRDS Accept 2100 Second Street, S.W. Washington, D.C. 20590 W. L. Hyland (202) 426-8432 FIVECHMOLOGY UTILITATION Airborne Proximity Warning Indicator (API Technical Objective: To determine the feasibility operational airborne means to help the pilot redumidair collisions under Visual Flight Rules (VFR) 25. Technical Approach: SRDS with contractor supposinstalled it in selected aircraft, and is acquirated awill be reduced in-house and recommend 26. Milestones Scheduled for Accomplishment: Summary Report Completed 26A. Accomplishments FY-77: Operational Flight Testing Complete	NA NA	RD 1750 - 1
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Washington, D.C. 20590 W. L. Hyland (202) 426-8432 ***TCCHNOLOGY UTILITYION ***Airborne Proximity Warning Indicator (AP)** Technical Objective: To determine the feasibility operational airborne means to help the pilot redumidair collisions under Visual Flight Rules (VFR) 5. Technical Approach: SRDS with contractor supposinstalled it in selected aircraft, and is acquithis data will be reduced in-house and recommend. 6. Milestones Scheduled for Accomplishment: • Summary Report Completed 6A. Accomplishments FY-77: • Operational Flight Testing Complete 7. Source of Requirement: Program Plan FAA-ED-05-1 28. Blank 30. Precedence	N/A	
Washington, D.C. 20590 W. L. Hyland (202) 426-8432 ***CCHNOLOGY UTILIATION NA Airborne Proximity Warning Indicator (API Technical Objective: To determine the feasibility operational airborne means to help the pilot redumidair collisions under Visual Flight Rules (VFR) 5. Technical Approach: SRDS with contractor supposinstalled it in selected aircraft, and is acquirable data will be reduced in-house and recommend. 6. Milestones Scheduled for Accomplishment: • Summary Report Completed 6A. Accomplishments FY-77: • Operational Flight Testing Complete 7. Source of Requirement: Program Plan FAA-ED-05-1 28. 29. Blank 30. Precedence	ING ORGANIZATION	
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	Design Plan complete			4/78	
.Collect an	nd analyze requirement	s data fro	om FAA sources	9/78	
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202-426-9354		TEL		TYPE
TECHNOLOGY UTILIZATION NA		22. COORDINATION	NA	
Communications Standards, Vo	vice Com	munications S		,1
Communications Standards, Fe	ederal S	tandards. Int	ernational Stand	dards
Technical Objective: To assist in				
international communications stand	lards an	d procedures	and determine th	he impact
of FAA utilization of developed st				
25 Approach: SRDS with contractor	support	. will partic	ipate on federa	l, national
and international standards group	S FAA	's communicat	ions requiremen	ts will be
made known and will be considered	in the	formation of	standards.	
26. Milestones Scheduled for Accompla				
. Functional/Mechanical Interface		n DTF and DCF	drafted	2/78
. Common Channel Telephone Signal	ling dra	fted	drareca	6/78
. Heading Format Structure (code	indepen	dent) drafted		8/78
. Terminal to Network Interface S	Standard	s for Packet	Switched	
Networks operating in the Virte	ual Circ	uit Mode draf	ted	3/79
26a. Accomplishments FY-77:				
. Telecommunications System Per	formance	Standard dra	fted	
. 4600 Baud MODEM Standard draft		O'Carrata and a		
Data Link Control procedure (oit orie	nted)standard	finalized	
. Glossary of telecommunication	terms a	nd definition	s finalized	
7. Source of Requirement NCS Itt 10/	5/12	28.	Blank	
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25 × 6	COMMUNICAT	TIONS, VOICE, SWITCHING	C	·		
M .	Technical	Objective: To provide	e the agen	cy with reliat	ole and consolid	ated voice
	communicat	tions switching subsys	tems of th	control and sr	witching function	ons that are
1	required t	to permit effective and	d timely a	ir-traffic-cor	trol operations	. between
1	ARTCCs. TH	RACONS, ATCTS, FSSs an	d their re	spective trunk	, remote, inter	-station
	operationa	al points and command	center com	munications.		
*	Approach:	SRDS, with NAFEC and	contracto	r support, wil	ll develop and e	evaluate
		tions switching system		in above facil	lities and provi	de a technicai
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1		e VCS Design Analysis e ER, AP, & PR for 1st	Article		9/79	
	. Complete		ALLICIE		7/80	
1		e TDP and Hand-Off			9/81	
26a		shments to FY-77				
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Date 2100 Second St. S.W.		ADDRESS		
Washington, D.C. 20591				
N.R. Anderson, ARD-223		PRINCIPAL:		
202 426-3076		ASSOCIATE:		TYPE
TECHNOLOGY UTILIZATION		22. COORDINATION		
NA		NA NA		
Technical Control, Communic	ation Sv	stems Mainten	ance Concept	
techniques for automatic status mexisting and future ATC systems. SRDS, with AAT and AAF, will studied relative restoration priority.	Validat	ion models wil	1 be developed	where require
. MILESTONES SCHEDULED FOR ACCOMPLI	SHMENT:			
Study of improvements to current	system c			12/77
Draft system control concept for PR for single thread validation m			on control sys	6/78
Delivery of validation model to N		mpreced		3/80
Complete T&E of Validation Model				9/80
ACCOMPLISHMENTS FY-77:				
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AUDIO AMPLITUDE SELECTOR UNI	T, MULTIC	OUPLERS, SENSO	RS	
MILESTONES SCHEDULED FOR ACCOMPLIS Evaluate Audio Comparator device			2/78	
Audio Comparator Device Technical	Data Pac	kage	10/78	
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R KEYWORDS	CAG Monitoring, Electron ey Units, Switching, Anto	ic Key Syst	em, Communic	ations Control C Control Units	enter (CCC),
	cal Objective: To develo				
elemen	ts or subsystem in order	to support	the ongoing	operational com	munications
	s by improving operation	al capabili	ty, reducing	cost, or improv	ing
mainta	inability.				
develo	ch: SRDS, with contractors/ p/specify communications/ equipments, electronic	element or	subsystem i	mprovements for	RCAG moni-
	ones Scheduled for Accom				
	a pale M in C	Land T. Charle	sompleted		8/78
. NAFE	C RCAG Monitor Sensors P unications Control Cente	nase I Stud r (CCC) Stu	dy completed		9/78 *
. Elec	tronic Key System Technic	cal Data Pa	ckage comple	ted	3/79
6a Accomp	lishments FY-77:				
			itiated		
	Monitoring Sensor invest 1 RML Project Report com		ilitated		
. ELT	Sensor specification and	procedures	completed		
. WMSC	multipoint procedures re	eady for im	plementation		
Depe	endant upon FY-78 Funds b	eing provid	led *		
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Washin	gton, D.C. 20590		IMVESTIGATORS I GOD	Reamer, ANA-440	
E. Hal 426-84	1, ARD-432			-3712	
TECHNOLOGY UTILIZE			TEL:		TYPE:
	NA			NA	
	ing Equipment, Marker	r Lights, Ru	inway Markings	, Visibility, Vi	sual Signals
Technical Ob	ach Slope Indicators jective: To provide	technical e	effort in respo	onse to requests	s for R&D or
as indicated	by analysis to susta	ain an accep	otable perform.	ance level of vi	isual aids.
Approach: S	RDS with NAFEC and co	ontractor su	ipport will (a)) investigate an	nd improve sy
and equipmen	t in order to provide	e safer, mor	re reliable and	d lower cost ins	stallations,
(2) provide	critical short term e	engineering	assistance to	operating Servi	ices.
Milestones S	cheduled for Accompli	ishment:			
Report on Lo	w Cost VASI				2/78
	n Data on Runway Ligh		-Precision Ins	trument Approact	hes 3/78
Report on Co	lored Runway Markings	8			5/78
Selection Or	der on Threshold Ligh	nts for MALS	SR Systems		6/78
	n Data on Markings ar				1/79
	isory Circular on Ter				2/79
	ndard for Intensity		Lighting Syste	ems	8/79
Report on T-	VASI Test and Analysi	is			6/79
	oducts of Previous F				
Report on St	ructural Tests of Pla	astic Frangi	ible Couplings		
Report on Ev	aluation of Red Silic	one Coated V	VASI Lens		
	t of Evaluation of "I		Runway Markin	gs	
Evaluation a	and Tests of Obstruct:	ion Beacons			
Letter Repor	t on Evaluation of Ir	mproved Clos	sed Runway and	Taxiway Marking	gs
Letter Repor	t on State-of-the-Art	t of Low-Cos	st VASI device	s.	
Source of B	equirement 9550-1 AAI	F-76-23. AA	P-550-77-1. AA	S-502-76-1 AAS	-502-76-2
	equirement 9550-1 AAF letter 11/7/74, N.			er to AEDI; 7/1	6/76
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19. GOV'Y LAB/INSTALL	ATION/ACTIVITY		20. PERFORMING ORGAN	IZATION	
ADDRESS FAA			ADDRESS		
	d St. S.W.				
Washing	ton, D.C. 20591		INVESTIGATORS		
REP. INDIV. Carl G	. Peterson/Forrest G. Y	etter	PRINCIPAL: ASSOCIATE:		
TEL: ARD-740 (202) 426-8605		TEL:		TYPE:
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	nding System (ILS), Gli	de Slope	(G.S.), Locali	zer (Loc.)	
and recommend capabilities antenna and stechnical dat Milestones Sc Continued rap SS ILS Lightn NAFEC scale m Install test Install and to Develop ILS Recomplishmen NBS calibrati medium apertudipole array study; NAFEC; calbe loc. ev	on standard for GS modure slotted cable loc. a ready for tests; ILS gr Scale model installed aluated and frangible G	problems t fixes f d evaluat r the iss ents: field pr nce reduc model ve broadside nd fire a speed ap lation es nd GS end ound spee , GS end S evaluat dtd.	that affect to correcting the prototype symmetry to blems the crification tray application trablished; evaluation trablished; evaluation to be crification t	che overall oper equipment, moni estems; prepare sion of ILS sta on completion NA aluation of smal at Tamiami; Bro didated; LOC FF tests, medium	open AFEC 10/77 12/77 8/77 9/77 3/79 8/79 11 and badside GS
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TECHNOLOGY UTILIZA	AT ION		TEL:		TYPE:
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	ng Equipment, Frangib t Beacon.	le Structu	res, Approach	Lights, Visibil	ity
	ective: To develop n	ew and imp	royed lighting	systems for use	e under all
weather condi	tions to make safer,	more relia	ble or less co	stly systems.	e dilact det
runway lighti i) lighting a 26. Mileston Report on Tes Report on Tes	es Scheduled for According and Evaluation of Plastic MALS effication for Obstruc	1 guidance rports. mplishemen f Frangibl and ALSF-2	, g) new light t: e Approach Lig Light Support	sources, h) IF	R markings, 11/77 9/78
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	nd St. S.W. gton. D.C. 20590				
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KEYWORDS Aircr	aft safety, Approach a	nd Landing	, Head-Up Dis	splay (HUD), Li	terature
earch, Cock	pit Displays, advanced	displays			
satisfactory conducted by	results of the NASA si operational experience the FAA at NAFEC in a	e, militar		al Flight to	
final HUD ev	n efforts will include aluation report.	large tur SRDS/NAFE	bojet airplar	ne in current a	esting will be airline use.
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Surfaces. Determine extent and frequency of detrimental effects such a	Bitumino
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deformations, round or chipping of groove edges and closing of grooves	in bituminou
surfaces. Determine criteria required for adequate performance of bitu	uminous
surfaces. Determine adequacy of performance of Pourous Friction Cou	rse and
other promising surfaces for runway SKID prevension and increase trac	tion of wet
runways.	
Approach: Same approach as used to develop optimum groove in Portland	nd Cement
Concrete. NAFEC to conduct and monitor test program using NAEC, L	akehurst
facility to accomplish the objectives. NAFEC will provide test plans an	d reports.
Milestones Scheduled for Accomplishments:	
Final Report on Portland Cement Contrete Surface Performance	12/77
Bituminous Surface Test and Evaluation Complete	10/78
Final Report on Bituminous Surface Performance	5/79
Porous Friction Course Test and Evaluation Complete	8/79
Final Report on Porous Friction Course Surface Performance	3/80
Accomplishments FY-77	
Test and Evaluation of Porous Friction Course	
Performance	
(Optimum Groove Configuration)	
Source of Requirement (9550 AAP-580-72-1) 28. Blank	
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(202) 426-			TELI 837-2026		TYPE: FTS
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II. TITLE:					
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S GOV'T LAB/INSTAL		out!	20. PERFORMING ORG	ANIZATION	
FAA/SRDS			NAME DOT/TSC		
2100 Se	cond St., S.W.		ADONCES Kendal	1 Square	
Washing	ton, D. C. 20590		Cambri	dge, MA. 02142	
			PRINCIPALI JO	hn W. O'Grady,	TSC-522
	Perie, ARD-102		ALBOCIATE		
(202) 426			78LI 837-2026		TYPE: FTS
TECHNOLOGY UTILI	NA			NA	
I KEYWORDS Air	Traffic Control Radar	Beacon Sy	stem (ATCRES)	Automation	
	port Surface Traffic C		seem (Aleida)	, Addomación,	
surveill	: Perform system engi ance and display subsy a prototype system in ent	stems alon	g with system	interfaces. The	hen procure
6. Mileston	es Scheduled for Accom	mplishment:			
- Comp	lete hybrid ASDE/ATCRE	SS surveill	ance and disp	lay analyses	10/78
- Inst	all prototype system f	or operati	onal evaluation	on	10/83
· - Comp	lete TAGS System Techn	nical Data	Package		4/85
6 . Naccount	inhmanta DV 77				
6a. Accompl	ishments FY-77:				
- Comp	lete ATCRBS Trilaterat	ion testing	g at BOS.		
Comp		.ion cobcin	g de bob.		
2 2 2			28.		
7. Source of	Requirement EDPP FAA	-ED-08-1	20.		
29.		O. Preceder			
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FAA/SRD			D. PERFORMING ORGAN		
2100 Se	cond Street, S.W.		I III LO	tic City, N.J.	08405
CP. INDIV.E. Hall				Reamer, ANA-440 -3712	
x68454			TEL		TYPE:
TECHNOLOGY UTILIZ	NA NA		22. COORDINATION	NA	
KEYWORDS			I		
Surface Con	trol, Signals, Ground	Guidance,	Traffic Contr	01	
test and ev runway or t	In House SRDS/NAFEC/Taluate systems which waxiway usage, improve educe controller work	vill elimin taxí guida	ate or reduce	potential confl	icts in
Milestones	Scheduled for Accompli	shment			
Test of Tak	eoff Clearance Confirm CS at higher activity ata package complete.	nation Syst	tem (TOCCS) corompleted.	t. NAFEC comple	te. 1/78. 10/78. 2/79.
6a. Accomplinone	shments FY-77:				
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AME: FAA/SR 2100 S Washin			D. PERFORMING ORGAN NAME: Transporta ADDRESS: Kendall Cambridge	ition Systems	
Henry 426-9	G. Tinsley ARD-740)	PRINCIPALI ASSOCIATE: TEL: 837-2181		TSC-521
TECHNOLOGY UTIL	NA		22 COORDINATION	NA	
KEVMORDS VOIL	ices, Turbulence, Predi	iction, An	emometers, Acou		s, Hazard,
Approach: The Transpo NAFEC and N presence of guidance in	ve air traffic managementation Systems Center ASA will design and devaircraft wake vortices tegrated with the meter	under the velop an open, their being and sp	terminal airspaces of SRDS, perational systemation, status bacing function	and in conju em to detect/ , and provide of the UG3rd	predict the avoidance ATC System
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09 AIRPORT/LANDSIDE (Transferred to OSEM)

10 OCEANIC
(No Program)

II ATC SYSTEMS COMMAND CENTER AUTOMATION

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	AND TECHNOLOGY RESUME	NA.	NA	NA NA	RD 1750 - 1
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Washingt	on, D.C. 20590		INVESTIGATORS PRINCIPALI		
	arlo J. Broglio		ASSOCIATE		
	426-9325		PELI		TYPEI
TECHROLOGY UTILI	NA NA		21. COORDINATION	NA	
KEY PONDS					
	, Traffic Prediction,	Energy Con	servation, Sy	stem Command Cen	ter
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Michael Deliman (202) 426-9372		MICCIATE: Ru 8-346-301	1	TYPE
TECHNOLOGY UTILIZATION		COORDINATION		777-21
NA .			NA	
Software, Design Studies, Syste	em Support Faci	lity		
Approach: Various software developmental activity. End or a design study, SRDS in-h accomplish the objective.	products will	be a softw	are production	specification
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- 24. Technical Objective: Develop, demonstrate and prepare specifications for hardware and software expansion of ARTS III to provide Multisensor Tracking, Digital Remoting and All Digital System improvements.
- 25. Approach: SRDS/NAFEC effort with contractor support will be utilized to achieve the above objective. The development efforts will utilize the Terminal Automation Test Facility (TATF) at NAFEC.
- 26. Milestones Scheduled for Accomplishment:

1.	Test and Evaluation of Radar Remoting System Completed*	8/78
2.	Test and Evaluation of MTD/monopulse SRAP completed*	8/78
3.	Design Specification Beacon Environment Analysis*	10/78
4.	Test and Evaluation of Remote Tower Display System Completed*	12/78

26A.Accomplishments for FY-77

- 1. TCDD Delivered to Tampa
- 2. Installation at NAFEC of SRAP II
- 3. Design Data for Beacon Environment Analysis Report
- 4. Study for Noise Monitoring Report

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16 TECHNOLOGY
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17 SATELLITES

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Cabin-Fir rials, Smoke, Toxi				and the control of th
materials, which will minimize conditions. 25. APPROACH: Minimize post-crash safety characteristics of cabin management systems such as comp e.g. develop methodology and cr hazards affect on cabin occupan for toxicology of combustion ga flammability, smoke, gas which validate cabin fire math model one or more cabin materials; de projects related to cabin fire 6.MILESTONES SCHEDULED FOR ACCOMP. Develop interim method to ran. Develop combined hazard index. Complete external/internal furomplete validation tests of Complete test plan: Criteria 6A.ACCOMPLISHMENTS FOR FY-77:	fire hazar materials partmentation iteria to rats; develop uses; develop wide-safety. LISHMENT: k a material methodologill-scale capabile fire	rds by developi and furnishing on and fire det rank cabin mate plaboratory temps advanced laborating combusting combody cabin fire tests math model (FA	eng(1) criteria gs; (2) criteria ector/extinguia erials for comb est protocol to coratory test a e cabin fire combustion hazard e test facility con toxicity aterial s (NAFEC) AA/NASA)	a to improve fire is for cabin fire isher systems; bined combustion or rank materials methods for conditions; develods time-hisotry of ty to support R&D 12/77 12/79 12/78 12/78
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Communications, Navigation, MLS, BCA				
Technical Objectives: To revise th	ie Navigat	tion Frequency	Separation Ha	indbook 6050.5A
To develop a preliminary assignmen	t model :	for MLS (azimu	th and elevat:	ion). To continue
deselopment of an implementation p	lan for	25 KHz UHF air	Jaround freque	ency assignments
To conduct EMC studies for BCAS.				doorgimenes.
a Approach: NAV/COM efforts will be	done with	in-house many	nower with our	port through
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26.Milestones Scheduled for Accompli	shment:			
"Real World" VHF Assignments		1/78		
Draft Nav. Handbook		3/78		
Draft MLS Criteria		6/78		
Report on UHF Implementation Plan		6/78		
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- Technical Reports:				
The Selection of ILS Ante	nna Patte	rns for Use in	the Frequenc	y Assignment
Process				
2. A Comparison of Measured	Data and	ITS Model Pred	lictions	
- UHG Frequency Assignment Mode				
- Revised A/G Com. Handbook rel	eased for	comment		
27. Source of Requirement Administra tional res	tor (fund	Fy) 28.		
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simulators for the FAA Academy. Radar Training Facility (RTF)	Two types	of simulato	rs to be consi	
5. Approach: SRDS in conjunction Traffic Service, FAA Academy and the functional specifications for provide management/technical exthe systems.	d NAFEC wil	1 conduct en ent of the A	gineering stud cademy simulat	dies, develop
. Milestones Scheduled for Accomp	lishment:			
. RTF Contract Award			11/77	
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A Accomplishments for FY-77:				,
. RTF RFP Issued				
. Tower Simulator Technical Fea	sibility Re	port		
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Air Traffic Control, Si 24. Technical Objective: S				CONTRACTOR & SPINSON CONTRACTOR CONTRACTOR
simulator programs; englong-term facility train 25. Approach: SRDS in conjugation validate techniques, has objectives. End production for field implementation	ning. unction with NAFEC rdware and software ts will consist of	will investigate necessary to	ate, develop achieve the	, test and technical
26. Milestones Scheduled for	r Accomplishment:			·
. ARTS III and En Route . Recommendations for U			3/78 4/78	;
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. Technical Data Packag	e and Specification	ns for Pilot Co	onsole	
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Air Traffic Control, Productivity 4. Technical Objective: Develop as they apply to selected ATC I packages. At least six of the productivity will be evaluated	and validate En Route and enhancement with a tech	ATC controll ARTS III aut packages tha	ler productivi tomation enhan at intend to i	ty benefits cement ncrease
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Air Traffic Control, En Route Separation Standards, Terminal Separation Standards.

24. Technical Objective: Perform analyses and studies to produce concept documents for maximum utilization of airspace in conjunction with present and future fuel conservation techniques.

25. Approach: In-house*resources will be utilized to simulate terminal and en route air-, space interactions associated with fuel conservation techniques. Profile descent concepts proposed essentially force holding and derandomizing techniques into the en route area. Concepts offering increased capacity in area, sector, or terminal airspace will be evaluated, and will include modifications to present en route and terminal air traffic control procedures, definitions of airspace, and flight procedures associated with terminal arrival and approach routes.

Particular emphasis should be given to determining the maximized terminal configuration. Although 4-post concepts are being employed data is needed to specify number of posts for maximized operation, distance and angle from runway and such other factors as non-interferring paths. *SRDS/NAFEC.

26. Milestones Scheduled for Accomplishment:

En Route Holding Impact Analysis 5/78

En Route Metering Concepts Analysis 7/78

Terminal Capacity Concepts 10/78

Simulation of High Gain Concepts 2/79

Technical Report Issued 5/79

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